

## **CLAIMS**

1. A communications headset comprising:  
a housing comprising a speaker driver;  
a nozzle for insertion into an ear canal, the nozzle coupled to the housing;  
an acoustically isolating ear piece coupled to the nozzle, the ear piece and the housing providing at least 15 dB of acoustic isolation from ambient sound over the range of audible frequencies; and  
a microphone.
2. A communications headset as in claim 1 wherein the ear piece provides acoustic isolation in the range of 15 to 25 dB from ambient sound over the range of audible frequencies.
3. A communications headset as in claim 1 wherein the ear piece comprises an opening and a flexible material adapted to frictionally engage an ear canal.
4. A communications headset as in claim 3 wherein the opening comprises a cylindrical, rigid tube and the flexible material comprises compressible foam surrounding the tube.
5. A communications headset as in claim 3 wherein the flexible material is plastic.
6. A communications headset as in claim 3 wherein the flexible material is silicone.
7. A communications headset as in claim 3 further comprising a boom assembly extending from the housing wherein the microphone is coupled to the boom assembly.
8. A communications headset as in claim 7 wherein the boom assembly comprises a rigid boom guide and a flexible boom.

9. A communications headset as in claim 7 wherein the longitudinal direction of the boom assembly defines a first axis and the longitudinal direction of the nozzle defines a second axis, wherein the first axis and the second axis intersect and define an angle in a first plane.
10. A communications headset as in claim 9 wherein the first angle is between about 77 and about 97 degrees.
11. A communications headset as in claim 9 wherein the first angle is about 87 degrees.
12. A communications headset as in claim 9 wherein the housing engages a user's ear in a second plane that is orthogonal to the first plane.
13. A communications headset as in claim 12 wherein the headset is symmetrical for use in either a user's left ear or a user's right ear.
14. A communications headset as in claim 12 wherein the second plane and the second axis define a second angle of between about 23 and about 43 degrees.
15. A communications headset as in claim 14 wherein the second angle is about 33 degrees.
16. A communications headset as in claim 9 further comprising a cable extending from the housing and defining a third axis and wherein the first axis, the second axis and the third axis are coplanar.
17. A communications headset as in claim 1 further comprising a flexible ear support.
18. A communications headset as in claim 3 wherein the ear piece solely supports the communications headset on the user.

19. A communications headset as in claim 1 further comprising a cable extending from the housing, the cable providing an input signal to the speaker driver and an output signal from the microphone.
20. A communications headset as in claim 19 wherein the microphone is coupled to the cable.
21. A communications headset as in claim 19 wherein the cable cooperates with the ear piece to support the communications headset on the user.
22. A communications headset as in claim 1 wherein the microphone is directional.
23. A communications headset as in claim 22 wherein the microphone is selected from the group consisting of cardioid microphones, bi-directional microphones and hypercardioid microphones.
24. A communications headset as in claim 1 wherein at least some ambient sound is electronically transmitted to the driver.
25. A communications headset as in claim 1 wherein the microphone is acoustically isolated from the driver signal and thereby reduces echo to a far-end talker.
26. A communications headset as in claim 3 wherein the flexible material is formed in a shape from the group consisting of a star, a kidney bean, a triangle, a starburst, a propeller and the letter C.
27. A communications headset as in claim 1 wherein the ear piece comprises a plurality of openings and a flexible material adapted to frictionally engage an ear canal.
28. A communications headset comprising:
  - a boom guide defining a first axis in its longitudinal direction;

a nozzle for insertion into an ear canal, the nozzle defining in its longitudinal direction a second axis and extending angularly from the first axis

a housing comprising a speaker driver, the nozzle coupled to the housing, the housing defining in its longitudinal direction a third axis, the first axis and the second axis extending angularly from the third axis;

an acoustically isolating ear piece coupled to the nozzle;

a boom extending from the boom guide; and

a directional microphone coupled to the boom.

29. A communications headset as in claim 28 further comprising a cable extending from the housing in the direction of the third axis, the cable providing an input signal to the speaker driver and an output signal from the microphone.

30. A communications headset as in claim 28 wherein the boom is rigid.

31. A communications headset as in claim 30 wherein a portion of the boom is rigid and a portion of the boom flexible.

32. A communications headset as in claim 28 wherein the first axis and the second axis define a first plane and the first axis and the second axis intersect and define in the first plane a first angle.

33. A communications headset as in claim 32 wherein the first angle is from about 77 to about 97 degrees.

34. A communications headset as in claim 32 wherein the first angle is about 87 degrees.

35. A communications headset as in claim 32 wherein the housing engages a user's ear in a second plane that is orthogonal to the first plane.

36. A communications headset as in claim 35 wherein the headset is symmetrical for use in either a user's left ear or a user's right ear.
37. A communications headset as in claim 35 wherein the second plane and the second axis define a second angle of between about 23 and about 43 degrees.
38. A communications headset as in claim 37 wherein the second angle is about 33 degrees.
39. A communications headset as in claim 28 further comprising a cable extending from the housing and defining a third axis and wherein the first axis, the second axis and the third axis are coplanar.
40. A communications headset as in claim 28 wherein the ear piece comprises an opening and a flexible material adapted to frictionally engage an ear canal.
41. A communications headset as in claim 40 wherein the flexible material is plastic.
42. A communications headset as in claim 40 wherein the flexible material is silicone.
43. A communications headset as in claim 40 wherein the opening comprises a cylindrical, rigid tube and the flexible material comprises compressible foam surrounding the tube.
43. A communications headset as in claim 28 wherein the ear piece and the housing provides acoustic isolation of at least 15 dB from ambient sound over the range of audible frequencies.
44. A communications headset as in claim 43 wherein the ear piece provides acoustic isolation in the range of 15 to 25 dB from ambient sound over the range of audible frequencies.

45. A communications headset as in claim 28 further comprising a flexible ear support.
46. A communications headset as in claim 28 wherein the ear piece solely supports the communications headset on the user.
47. A communications headset as in claim 28 wherein at least some ambient sound is electronically transmitted to the driver.
48. A communications headset as in claim 28 wherein the microphone is acoustically isolated from the driver signal and thereby reduces echo to a far-end talker.
49. A communications headset comprising:
- a first housing for a first ear, the first housing comprising a first speaker driver;
  - a second housing for a second ear, the second housing comprising a second speaker driver;
  - a first nozzle for insertion into the first ear canal, the first nozzle coupled to the first housing;
  - a second nozzle for insertion into the second ear canal, the second nozzle coupled to the second housing
  - a first acoustically isolating ear piece coupled to the first nozzle, the first ear piece and the housing providing at least 15 dB of acoustic isolation from ambient sound over the range of audible frequencies;
  - a second acoustically isolating ear piece coupled to the second nozzle, the second ear piece and the second housing providing at least 15 dB of acoustic isolation from ambient sound over the range of audible frequencies; and
  - a microphone.

50. A communications headset as in claim 49 further comprising lateralization means for manipulating a first signal to the first speaker driver and a second signal to the second speaker driver to create a sensation that sound is coming from one direction more than from another direction.

51. A communications headset as in claim 50 wherein the lateralization means comprises at least one of the following steps: manipulation of a level difference, manipulation of a phase difference and manipulation of an intraural time difference.